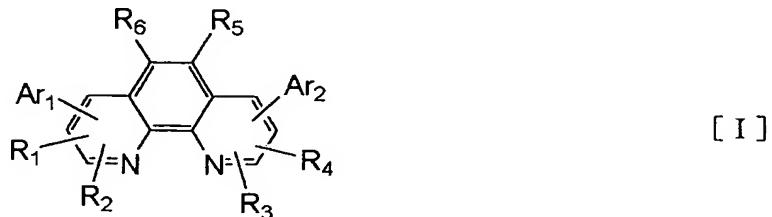


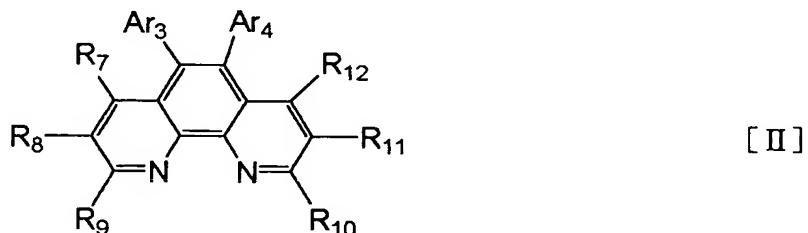
CLAIMS

1. A phenanthroline compound represented by the general formula [I]:



- 5 (wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an  
10 unsubstituted or substituted heterocyclic group, and a halogen atom; and Ar<sub>1</sub> and Ar<sub>2</sub> are the same or different and each is selected from an unsubstituted or substituted fluorenyl group, an unsubstituted or substituted fluoranthenyl group, an unsubstituted or substituted perylenyl group, and an unsubstituted or  
15 substituted carbazolyl group).

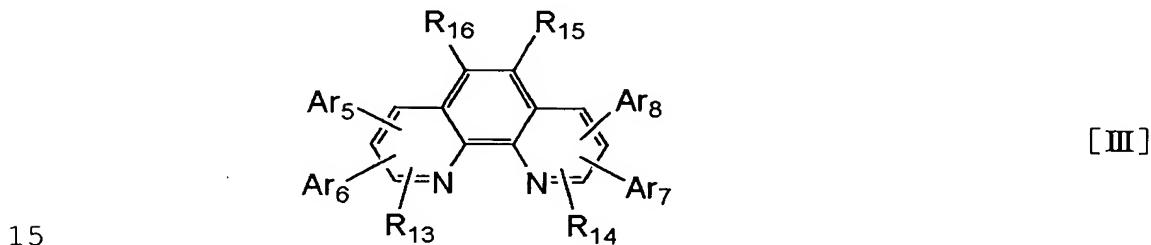
2. A phenanthroline compound represented by the general formula [II]:



- 20 (wherein R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are the same or

different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an  
5       unsubstituted or substituted heterocyclic group, and a halogen atom; and Ar<sub>3</sub> and Ar<sub>4</sub> are the same or different and each is selected from an unsubstituted or substituted fluorenyl group, an unsubstituted or substituted fluoranthenyl group, an unsubstituted or  
10      substituted perylenyl group, and an unsubstituted or substituted carbazolyl group).

3. A phenanthroline compound represented by the general formula [III]:



(wherein R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an  
20      unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, and a halogen atom; and Ar<sub>5</sub>, Ar<sub>6</sub>, Ar<sub>7</sub> and Ar<sub>8</sub> are the same or different and each is selected from an

unsubstituted or substituted fluorenyl group, an unsubstituted or substituted fluoranthenyl group, an unsubstituted or substituted perylenyl group, and an unsubstituted or substituted carbazolyl group).

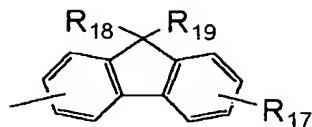
5

4. The phenanthroline compound according to claim 1, wherein the fluorenyl group is represented by the general formula [IV]:



10 (wherein R<sub>17</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a  
15 substituted amino group, a cyano group, and a halogen atom; and R<sub>18</sub> and R<sub>19</sub> are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an  
20 unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

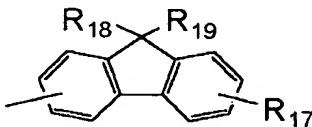
5. The phenanthroline compound according to claim 2, wherein the fluorenyl group is represented  
25 by the general formula [IV]:



[IV]

- (wherein R<sub>17</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an  
5 unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom; and R<sub>18</sub> and R<sub>19</sub> are the same or different and each is selected from a hydrogen atom, an  
10 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

- 15 6. The phenanthroline compound according to claim 3, wherein the fluorenlyl group is represented by the general formula [IV]:



[IV]

- (wherein R<sub>17</sub> is selected from a hydrogen atom, an  
20 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a

substituted amino group, a cyano group, and a halogen atom; and R<sub>18</sub> and R<sub>19</sub> are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an  
5 unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

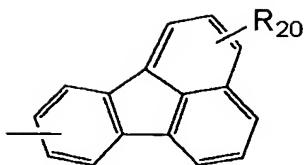
7. The phenanthroline compound according to  
10 claim 1, wherein the fluoranthenyl group is represented by the general formula [V]:



(wherein R<sub>20</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an  
15 unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

20

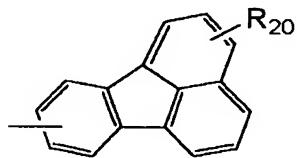
8. The phenanthroline compound according to claim 2, wherein the fluoranthenyl group is represented by the general formula [V]:



[V]

(wherein R<sub>20</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an  
5 unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

10 9. The phenanthroline compound according to claim 3, wherein the fluoranthenyl group is represented by the general formula [V]:

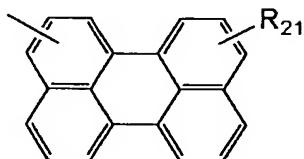


[V]

(wherein R<sub>20</sub> is selected from a hydrogen atom, an  
15 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).  
20

10. The phenanthroline compound according to claim 1, wherein the perylenyl group is represented

by the general formula [VI]:

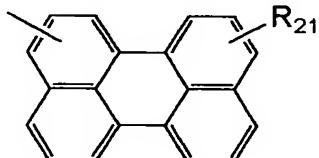


[VI]

- (wherein R<sub>21</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an  
5 unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

10

11. The phenanthroline compound according to claim 2, wherein the perylenyl group is represented by the general formula [VI]:



[VI]

- 15 (wherein R<sub>21</sub> is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an  
unsubstituted or substituted aralkyl group, an  
unsubstituted or substituted aryl group, an  
unsubstituted or substituted heterocyclic group, a  
20 substituted amino group, a cyano group, and a halogen atom).

12. The phenanthroline compound according to

claim 3, wherein the perylenyl group is represented by the general formula [VI]:



(wherein R<sub>21</sub> is selected from a hydrogen atom, an  
5 unsubstituted or substituted alkyl group, an  
unsubstituted or substituted aralkyl group, an  
unsubstituted or substituted aryl group, an  
unsubstituted or substituted heterocyclic group, a  
substituted amino group, a cyano group, and a halogen  
10 atom).

13. The phenanthroline compound according to  
claim 1, wherein the carbazolyl group is represented  
by the general formula [VII]:



15 (wherein R<sub>22</sub> and R<sub>23</sub> are the same or different and  
each is selected from a hydrogen atom, an  
unsubstituted or substituted alkyl group, an  
unsubstituted or substituted aralkyl group, an  
unsubstituted or substituted aryl group, an  
20 unsubstituted or substituted heterocyclic group, a  
substituted amino group, a cyano group, and a halogen  
atom).

14. The phenanthroline compound according to claim 2, wherein the carbazolyl group is represented by the general formula [VII]:



5 (wherein R<sub>22</sub> and R<sub>23</sub> are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an  
10 unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).  
15

15. The phenanthroline compound according to claim 3, wherein the carbazolyl group is represented by the general formula [VII]:



(wherein R<sub>22</sub> and R<sub>23</sub> are the same or different and each is selected from a hydrogen atom, an  
20 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a

substituted amino group, a cyano group, and a halogen atom).

16. An organic light emitting device  
5 comprising a pair of electrodes consisting of an anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline compound set forth in claim 1, interposed between the pair of electrodes.

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17. An organic light emitting device  
comprising a pair of electrodes consisting of an anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline  
15 compound set forth in claim 2, interposed between the pair of electrodes.

18. An organic light emitting device  
comprising a pair of electrodes consisting of an  
20 anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline compound set forth in claim 3, interposed between the pair of electrodes.

- 25 19. The organic light emitting device  
according to claim 18, wherein the layer comprising the organic compound comprising the phenanthroline

compound functions as an electron transporting layer  
or a light emitting layer.